DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention relates to the device which holds the monitor section of ultrasonic diagnostic equipment for observation of a picture.
[0002]
[Description of the Prior Art]Conventionally, composition as shown in drawing 2 as this kind of the monitor supporting structure is known. The crevice 52 is formed on the main part 51 of ultrasonic diagnostic equipment, and the pedestal section 53 is supported by the crevice 52 so that a slide to a horizontal direction (the direction of arrow A which intersects perpendicularly with space) is possible. The circular crevice 54 is formed in the upper surface of the pedestal section 53, and the disc-like seat 55 is supported pivotable in the direction of arrow B focusing on vertical-axis Y-Y in the crevice 54. The semicircular state crevice 56 is formed in the upper surface of the seat 55, the semicircular state projected part 58 provided in the crevice 56 at the lower part of the monitor section 57 is supported, and the monitor section 57 is rockable to a sliding direction (the direction of arrow C).
[0003]In the above composition, the operation is explained hereafter. By moving the monitor section 57 in the direction of arrow A with the seat 55 and the pedestal section 53, rotating the monitor section 57 in the direction of arrow B with the seat 55, and also making the monitor section 57 rock in the direction of arrow C, the monitor section 57 can be adjusted to the position which an operator desires, and can be held.
[0004]
[Problem(s) to be Solved by the Invention]However, in the above-mentioned conventional monitor section supporting structure, in order for an operator to double the monitor section 57 with the height of an own eye, a sliding direction (the direction of arrow C) is made to rock the monitor section 57, and it is adjusted. Thus, if the monitor section 57 is leaned to a sliding

direction, an operator must look up at or look down on the monitor section 57, and an operator will get tired easily. Although it can install in the position which an operator expects the monitor section 57 only after adjusts the monitor section 57 separately in the three directions of the arrow A, B, and C, these operations cannot be performed single hand but there are problems, like tuning is troublesome.

[0005]This invention solves such a conventional problem, can be easily adjusted to the height position which asks for a monitor section, and can hold it, Therefore, an operator becomes easy to observe a picture and the monitor section supporting structure of the ultrasonic diagnostic equipment which enabled it to reduce fatigue of an operator is provided, It aims at providing the monitor section supporting structure of the ultrasonic diagnostic equipment which enabled it to install a monitor section in arbitrary positions convenient for diagnosing work simply.

[0006]

[Means for Solving the Problem]This invention is characterized by comprising:

To achieve the above objects, a support member which is connected by parallelogram relations between a main part of ultrasonic diagnostic equipment, and a monitor section so that boom hoisting to a sliding direction is possible, and supports the above-mentioned monitor section with the same posture so that parallel translation is possible.

A balanced means to expand and contract and to hold the above-mentioned monitor section to a state of rest according to reaction force on the occasion of up-and-down motion of the above-mentioned monitor section accompanying boom hoisting of this support member.

[0007]In the above-mentioned technical means, 1 side of a support member is connected with a member rotates of a main part of ultrasonic diagnostic equipment supported by vertical axis rotatable, and other sides of the above-mentioned support member are connected with a movable member of a monitor section which supports a body part rotatable with a vertical axis.

[0008]And it can have a spring which intervened between an elastic member and this elastic member as the above-mentioned balanced means.

[0009]

[Function]Therefore, according to this invention, by easy operation in which an operator moves a monitor section up and down using boom hoisting of a support member, parallel translation of the monitor section can be carried out with the same posture, and it can hold to the height position of the eye which is easy to observe a picture by a balanced means.

[0010]By rotating a monitor section and a support member with the member rotates of the main part of ultrasonic diagnostic equipment, and rotating the body part of a monitor section to a movable member, it can hold in arbitrary positions convenient for diagnosing work, and the

operation can be performed single hand.

[0011]

[Example]Hereafter, it explains, referring to drawings for one example of this invention.

[0012]drawing 1 shows the monitor section supporting structure of the ultrasonic diagnostic equipment in one example of this invention -- it is a fracture side view in part.

[0013]As shown in drawing 1, the rotation stand 3 which may rotate with the vertical axis 2 is established in the main part 1 of ultrasonic diagnostic equipment. On the other hand, the monitor section 4 is supported so that the buck 6 of the body part 5 may rotate with the vertical axis 8 to the movable base 7, and perpendicularly, the screen of the body part 5 is turned ahead in rectangular directions.

[0014]By a support member, with the same posture, the monitor section 4 is supported by the main part 1 of ultrasonic diagnostic equipment so that parallel translation is possible. That is, the equal links 9 and 10 of the length of a couple are arranged in parallel, the link 9 and 10 one side each is connected with the rotation stand 3 by the joints 11 and 12, and each other sides of the links 9 and 10 are connected with the movable base 7 by the joints 13 and 14. Thus, the links 9 and 10, the rotation stand 3, and the movable base 7 are connected with parallelogram relations, and the parallel motion mechanism in which the monitor section 4 carries out parallel translation to a sliding direction with the same posture by boom hoisting of the links 9 and 10 is constituted.

[0015]On the occasion of up-and-down motion of the monitor section 4 accompanying boom hoisting of the links 9 and 10, a balanced means to expand and contract and to hold the monitor section 4 to a state of rest according to reaction force is formed. As the example, the piston 17 of the base of the piston rod 16 is slidably inserted in the cylinder 15, and it can expand and contract. In the cylinder 15, the compression spring 18 which energizes the piston 17 and the piston rod 16 to a projection direction is dedicated. Therefore, the cylinder 15 and the piston rod 16 resist and contract to the elasticity of the compression spring 18, and this is conversely lengthened by the impact resilience of the compression spring 18. The base 3 of the cylinder 15 is connected with the rotation stand 3 by the joint 19 rotatable, and the tip part of the piston rod 16 is connected with the pars intermedia of the link 9 by the joint 20 rotatable. And it is set up so that it may mention later and the monitor section 4 can be held to a state of rest according to the reaction force of the compression spring 18.

[0016]In the above composition, the operation is explained hereafter. As the arrow D shows the monitor section 4, when an operator moves up and down using boom hoisting of the links 9 and 10, parallel translation of the monitor section 4 is carried out. Since the reaction force (W_2) of the compression spring 18 in the cylinder 15 is acting in the direction which expands the cylinder 15 and the piston rod 16 at this time, it is acting as power in which the component of a force (W_2-Y) of that perpendicular direction (Y shaft orientations) tends to push up the links 9

and 10 upwards. And since it rotates in the direction in which these cylinders 15 and the piston rod 16 occur perpendicularly and the component of a force becomes large when it rotates in the direction in which the links 9 and 10 occur and the cylinder 15 and the piston rod 16 are extended, Even if the reaction force of the compression spring 18 is small, gross mass W_1 of monitor section 4 grade can be made to be able to balance, and the monitor section 4 can be held to a state of rest in an ascending position. When it rotates in the direction from which the links 9 and 10 break down and the cylinder 15 and the piston rod 16 are shrunken, rotate in the direction by which these cylinders 15 and the piston rod 16 fall down horizontally, and the component of a force becomes small, but. Since the reaction force of the compression spring 18 becomes large, gross mass W_1 of monitor section 4 grade can be made to be able to balance, and the monitor section 4 can be held to a state of rest in a falling position. Therefore, the body part 5 of the monitor section 4 can be held to the height position of the eye which is easy to carry out image observation.

[0017]It is made to rotate, as the arrow E shows the monitor section 4 and the links 9 and 10 with the rotation stand 3 focusing on the vertical axis 2, It can hold in arbitrary positions convenient for diagnosing work by making it rotate, as the arrow F shows the body part 5 of the monitor section 4 to the movable base 6 focusing on the vertical axis 8.

[0018]Thus, by using boom hoisting of the links 9 and 10 according to the above-mentioned example, Since the monitor section 4 can be installed in the arbitrary positions of a sliding direction (perpendicular direction) and arbitrary positions can be made to rotate the monitor section 4 focusing on the axis 2 of the rotation stand 3, or the axis 8 of the buck 6, Even if those who observe the monitor section 4 are in which position, they can install the monitor section 4 in a legible position.

[0019]As a balanced means, a gas damper, an oil damper, etc. can be used in addition to the above-mentioned example. The links 9 and 10 and the cylinder 15, the piston rod 16, and the balanced means of compression spring 18 grade can be dedicated to a case (graphic display abbreviation). In addition, the design variation of this invention can be variously carried out in the range which does not deviate from the fundamental technical thought.

[0020]

[Effect of the Invention]As explained above, according to this invention, by easy operation in which an operator moves a monitor section up and down using boom hoisting of a support member, parallel translation of the monitor section can be carried out with the same posture, and it can hold to the height position of the eye which is easy to observe a picture by a balanced means. Therefore, fatigue of an operator is mitigable, even if an operator becomes easy to observe a picture and uses it over a long time.

[0021]By rotating a monitor section and a support member with the member rotates of the main part of ultrasonic diagnostic equipment, and rotating the body part of a monitor section to

a movable member, it can hold in arbitrary positions convenient for diagnosing work, and the operation can be performed single hand. Therefore, a monitor section can be installed easily [that convenient for diagnosing work it locates / to wish].

[Translation done.]